

**HAZARD ANALYSIS FORM**

This form can be used by Fermilab Employees, Fermilab Supervisors, Fermilab Task Managers and Construction Subcontractors. This is a dynamic document which may require modification as the project moves from start to finish and should be readily available at the site where the work is being performed.

*Note: Not all sections of the first page are applicable to every job or task, complete what is necessary for your specific job or task.*

Job Title

Job Location

Contract/Work Order #

**TO BE COMPLETED FOR WORK INVOLVING SUBCONTRACTORS**

<u>Subcontractor (if applicable)</u>	<u>Fermilab</u>
Company <input type="text"/>	Project Eng./C.M. <input type="text"/>
Project Manager <input type="text"/>	Phone <input type="text"/>
Phone <input type="text"/> Page <input type="text"/>	TM/CC/SC <input type="text"/>
ESH Rep. <input type="text"/>	Phone <input type="text"/> Page <input type="text"/>
Phone <input type="text"/> Page <input type="text"/>	ESH Rep. <input type="text"/>
	Phone <input type="text"/> Page <input type="text"/>

**AT LEAST TWO SIGNATURES ARE REQUIRED**

<input type="checkbox"/> Prepared _____	Date <input type="text" value="Aug 23, 2016"/>
Print Name <input type="text" value="John Voirin"/>	
<input type="checkbox"/> Accepted _____	Date <input type="text"/>
Print Name <input type="text"/>	
<input type="checkbox"/> Accepted as noted _____	Date <input type="text"/>
Print Name <input type="text"/>	

Description of Work:

Panels will be brought into LArTF on a frame in the horizontal position. They will be picked up using a vacuum lifting fixture. Safety straps will be applied and the panels will be lowered by crane to the bottom level of LArTF. Here the panel will be rotated into the proper orientation. Personnel in lifts will then guide the panel into the vertical assemblies and secure with clips. The assembly will then be rolled with guidance into its final position. After installation personnel will connect the wiring for readout and power as necessary. +

**Personal Protective Equipment:** (Check protective equipment required for the job)

- |  |                                       |   |
|--|---------------------------------------|---|
| <input checked="" type="checkbox"/> Safety glasses                 | <input type="checkbox"/> Side shields | <input type="checkbox"/> Chemical splash goggles              |
| <input type="checkbox"/> Hearing Protection                        |                                       | <input checked="" type="checkbox"/> Hard Hats                 |
| <input type="checkbox"/> 3.0 Brazing goggles                       |                                       | <input type="checkbox"/> Impact goggles                       |
| <input type="checkbox"/> Face shield                               |                                       | <input type="checkbox"/> Rubber apron                         |
| <input type="checkbox"/> Leather gloves                            |                                       | <input type="checkbox"/> Hot/Cold thermal protective gloves   |
| <input type="checkbox"/> Chemical resistant gloves (specify type): |                                       | <input type="checkbox"/> Respirators                          |
| <input type="text"/>   |                                       |   |
| <input checked="" type="checkbox"/> Other required PPE (specify):  |                                       | <input type="checkbox"/> Fall protection equipment (specify): |
| <input type="text" value="Escape packs"/>                          |                                       | <input type="text"/>  |

**Environmental Aspects (check one):**

- Yes, I have thought about the environmental aspects of this job and will document such aspects and mitigation steps within this document.
- Yes, I have thought about the environmental aspects of this job and no such credible aspects exist and therefore do not need to be written in this document.

**Equipment required for the job:** (List the tools needed to perform the job.)

Hand tools. Anver vacuum lifting fixture, personnel lifts Crane (in house)

**Work plan history information:** (List any lessons learned incidents from this job, tips from previous jobs)

**Improvement/Feedback:** At the conclusion of the job, the Task Manager, Supervisor and / or Project Leader shall work with those involved to consider lessons learned and receive in order to improve future work plans.

**Check one:**

- Yes we have considered lessons learned and accepted feedback on this job and will communicate such information so that in future work plans may be improved.
- Yes we have considered lessons learned feedback and determined that future work plans do not need to be improved.

Utilizing the format below, identify hazards and environmental aspects, and their corresponding safety precautions/procedures to mitigate hazards. Use as many sheets as necessary.

### HAZARD ANALYSIS

Description	Hazards/ Environmental Aspects	Precautions / Safety Procedures
<p>Move panels and equipment into LArTF</p> <p>Put Lifts into position and move vertical assemblies to be used into position.</p> <p>Connect one panel to vacuum fixture.</p> <p>Lift panel from cart and position for moving down to lower level. Proceed to lower.</p> <p>Personnel below receive load and secure. Rotate if needed. Guide load up to installation position. Guide panel into lower "H" clips. Rotate panel to match vertical hanger. Attach upper "H" clips.</p> <p>Release vacuum from fixture and allow panel to assume normal position. Roll panel assembly into final position.</p> <p>Take fixture up from area. Return to top to retrieve the next panel.</p> <p>Working in lifts</p> <p>Operating and building power failure.</p> <p>Only qualified Anver fixture operators can utilize the lifting fixture</p>	<p>Crane, Fork truck</p> <p>Back strain, finger pinch. lift dangers.</p> <p>Dropping damaging panel</p> <p>Damage to people below. Equipment.</p> <p>Crane and rigging hazards People below load. Unauthorized people in work area. Working from Lifts.</p> <p>Swinging load. Pinch Hazard. Crane load in area</p> <p>Crane work. Rigging hazard</p> <p>Extended escape time</p> <p>Panel suspended. Loose vacuum.</p>	<p>Use trained operators. Keep non essential personnel out of the are FOR THE WHOLE TASK</p> <p>Use help. Move slowly. Keep fingers clear. Use trained operators in lifts.</p> <p>Vacuum fixture must be inspected daily before use. Inspectors must be qualified to inspect. Follow procedure for vacuum fixture use.. Keep personnel clear. Fixture operators must be qualified to do so.</p> <p>Follow procedure for vacuum fixture use.. Keep personnel clear. Use tag line to control. Keep people from under load. Use (2) safety straps on load.</p> <p>Use trained operator on crane and in lifts. Follow procedure for rotating and using fixture. Do not go under load. Keep area secure. Move panel slowly.</p> <p>Prepare for load to release. Have tag line on fixture. Keep hands clear of pinch areas.</p> <p>Use trained operators. Use tag lines. Use good communication throughout exercise.</p> <p>Personnel in lifts shall have escape packs due to extended escape time.</p> <p>Known hang time &gt; 1.5 hours. Have location of generator. Procure and replenish vacuum as needed. If possible use lift to secure panel with straps.</p> <p>Please see attached list for qualified operators.</p>

## GUIDELINES FOR COMPLETING THE HAZARD ANALYSIS

Phase of Work	Safety Hazard	Precautions / Safety Procedures
<p>Examining a specific job by breaking it down into a series of steps or tasks, will enable you to discover potential hazards employees may encounter.</p> <p>Each job or operation will consist of a set of steps or tasks. For example, the job might be to move a box from a conveyor in the receiving area to a shelf in the storage area. To determine where a step begins or ends, look for a change of activity, change in direction or movement.</p> <p>Picking up the box from the conveyor and placing it on a hand truck is one step. The next step might be to push the loaded hand truck to the storage area (a change in activity). Moving the boxes from the truck and placing them on the shelf is another step. The final step might be returning the hand truck to the receiving area.</p> <p>Be sure to list <i>all</i> steps needed to perform the job. Some steps may not be performed each time; an example could be checking the casters on the hand truck. However, if that step is generally part of the job it should be listed.</p>	<p>A hazard is potential danger to a person or equipment. The purpose of the Job Safety Analysis is to identify ALL hazards - both those produced by the environment and those connected with the job procedure.</p> <p>To identify hazards, ask yourself these questions about each step:</p> <p>Is there a danger of the employee striking against, being struck by, or otherwise making injurious contact with an object?</p> <p>Can employees be caught in, by, or between objects?</p> <p>Is there potential for slipping, tripping, or falling?</p> <p>Could the employee suffer strains from pushing, pulling, lifting, bending, or twisting?</p> <p>Is the environment hazardous to safety and/or health (toxic gas, vapor, mist, fumes, dust, heat, or radiation)?</p> <p>Are there electrocution hazards?</p> <p>Close observation and knowledge of the job is important. Examine each step carefully to find and identify hazards - the actions, conditions, and possibilities that could lead to an accident. Compiling an accurate and complete list of potential hazards will allow you to develop the recommended safe job procedures needed to prevent accidents.</p>	<p>Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the hazards that could lead to an accident, injury or occupational illness.</p> <p>Begin by trying to: 1) engineer the hazard out; 2) provide guards, safety devices, etc.; 3) provide personal protective equipment; 4) provide job instruction training; 5) maintain good housekeeping; 6) insure good ergonomics (positioning the person in relation to the machine or other elements in such a way as to improve safety).</p> <p>List the recommended safe operating procedures. Begin with an action word. Say exactly what needs to be done to correct the hazard, such as, "lift using your leg muscles." Avoid general statements such as, "be careful", "use caution", and "be alert".</p> <p>List the required or recommended personal protective equipment necessary to perform each step of the job.</p> <p>Give a recommended action or procedure for each hazard.</p> <p>Serious hazards should be corrected immediately. The JSA should then be changed to reflect the new conditions.</p> <p>Finally, review your input on all three columns for accuracy and completeness. Determine if the recommended actions or procedures have been put in place. Re-evaluate the job safety analysis as necessary.</p>



